



UNU-MERIT Working Paper Series

#2014-016

Structure of labour market and unemployment in Sudan Samia Satti Osman Mohamed Nour

Maastricht Economic and social Research institute on Innovation and Technology (UNU-MERIT)
email: info@merit.unu.edu | website: <http://www.merit.unu.edu>

Maastricht Graduate School of Governance (MGSoG)
email: info-governance@maastrichtuniversity.nl | website: <http://mgsog.merit.unu.edu>

Keizer Karelplein 19, 6211 TC Maastricht, The Netherlands
Tel: (31) (43) 388 4400, Fax: (31) (43) 388 4499

UNU-MERIT Working Papers

ISSN 1871-9872

**Maastricht Economic and social Research Institute on Innovation and Technology,
UNU-MERIT**

**Maastricht Graduate School of Governance
MGSoG**

*UNU-MERIT Working Papers intend to disseminate preliminary results of research
carried out at UNU-MERIT and MGSoG to stimulate discussion on the issues raised.*

Structure of Labour Market and Unemployment in Sudan

By Dr. Samia Satti Osman Mohamed Nour

(January 2014)

Structure of Labour Market and Unemployment in Sudan

By Dr. Samia Satti Osman Mohamed Nour¹

(January 2014)

Abstract

This paper examines the structure of the labour market and unemployment in Sudan. One advantage of our analysis is that we explain several stylized facts on the labour market using new secondary data on population, employment and unemployment based on Sudan Central Bureau of Statistics (2010) the Fifth Sudan Population and Housing Census (2008). We explain several stylized facts on the relation between the structure of the labour market and demographic structure, labour force, participation rates, economic activities, low skill level and high unemployment rate defined by gender and mode of living in Sudan. Different from the findings in the empirical literature in support of the Phillips curve on the negative correlation between inflation and unemployment rates, we find a positive and significant correlation between unemployment and inflation rates in Sudan during the period 2000-2008. Moreover, different from the analysis in Sudanese literature, we present a more comprehensive analysis of four stylized facts on the unemployment problem in Sudan, including identifying several types of unemployment; interpretation of unemployment problems from due to endogenous and exogenous causes; analysis of the high incidence of unemployment among youth population and a high mismatch between educational qualifications (supply) and labour market requirements (demand). The major policy implication from our findings is that the unemployment problem is related to endogenous and exogenous causes; therefore policy interventions for reducing unemployment should deal with these endogenous and exogenous causes. Notably, improvement of job creation and quality of educational policies and consistency between educational qualifications (output) and labour market requirements. Another major policy implication from our results on the significant positive correlation between increase in unemployment and inflation rates (2000-2008), implies that macroeconomic policies aimed at or targeting reducing inflation rates would also help to reduce unemployment rates in Sudan.

Keywords: Labour market, employment, unemployment, Sudan.

JEL classification: E24, J10, J11, J20, J21, J23, J24, J64

¹ Corresponding Author: Dr. Samia Satti Osman Mohamed Nour, Affiliated Researcher – UNU-MERIT- School of Business and Economics, University of Maastricht, Maastricht, the Netherlands; and Associate Professor of Economics, Economics Department, Faculty of Economic and Social Studies, Khartoum University, Khartoum, Sudan. E-mail: samiasatti@yahoo.com; samia_satti@hotmail.com. The first draft of this paper was originally prepared within the author's research project "Technological Change and Skill Development: the case of Sudan" during the author's time as a visiting research fellow at the University of Maastricht, School of Business and Economics, UNU-MERIT, Maastricht, the Netherlands. The author gratefully acknowledges the Arab Fund for Economic and Social Development, Kuwait, for research grant and fellowship and University of Maastricht, School of Business and Economics, UNU-MERIT for the good hospitality during her visiting research fellowship. The present paper is a revised version of the working paper published with the title "Labour market and unemployment in Sudan," UNU-MERIT Working Paper 2011-07, Maastricht, the Netherlands, January 2011. The author would like to gratefully thank Prof. Joan Muysken and Dr. Hisham Mohamed Hassan for their useful comments on the first draft of this paper. All the usual disclaimers apply.

1. Introduction

Economists have long recognized the essential role of full employment and equity for achieving sustainability and improvement of economic growth in any society. Both the classical and new growth theories and empirical literature indicate that full employment and equilibrium in the labour market is an objective that every economy aims to fulfil. Failure to achieve full employment and the incidence of unemployment problem and their serious implications on causing mismatch between supply of and demand for labour could have several macroeconomic effects and hindering the process of economic growth and development. Therefore, every country aims to achieve full employment to avoid the negative consequences of unemployment.

Different schools of thoughts use different definitions, conceptual frameworks and interpretations of unemployment problem. Theoretical and empirical literature presents a comprehensive discussion of the causes and consequences of unemployment problem from both supply and demand perspectives. The Classical school focuses on the supply side and interprets the unemployment problem due to excess supply of labour. For the New Classical School the unemployment problem can be attributed to the rigidity in wages. The Keynesian school focuses on the demand side and attributes the unemployment problem due to deficient demand, involuntary (compulsory) unemployment. According to the International Labour Organization (ILO) unemployment refers to all people who are not currently working, not employed and are currently looking for jobs (at the available wage rate) in the market, but unable to find a suitable job, at the prevalent wage rate. The rate of unemployment refers to the share of the labour force that is without work but available for and seeking employment. The definition of ILO explained unemployment mainly due to the surplus supply of labour.

More recently, the long run economic growth and sustainable development strategy in Sudan aims to achieve and sustain peace and to shift to political and economic stabilization, balanced development strategies, economic diversification, build of adequate human resources, build institutional reform and enhance self-reliance on domestic capital and workers. In addition, overcoming the strategic problems and challenges confronting economic development and thereby achieving economic growth and sustainable development in Sudan depends on the strategies of alleviation of poverty and reducing unemployment and restructuring the labour market. In our opinion the success/fulfilment of the strategies of reducing unemployment and poverty problems are interrelated. In particular, confronting with the challenge of poverty alleviation depends on the creation or development of adequate and appropriate employment opportunities in Sudan, notably, the creation of more permanent jobs implies more sufficient and sustainable income available for the poor and that will help to reduce the poverty rate.

Explaining the case of Sudan is both interesting and significant because of high and recent increasing unemployment rate in Sudan. Moreover, both the growing inflow of FDI and the

increased wealth from oil has encouraged migration to Sudan. Consequently, migrant workers have increased in the labour market, particularly in the private sector that also probably affected the structure of labour market and contributed to the growing unemployment rate. In addition, Sudan suffered from structural problems related to the lack of political stability, continuous conflict, regional disparities due to imbalanced development strategies, poverty and low skill level which has also affected the structure of labour market and contributed to high unemployment rate. Hence, the upskilling and creation of employment become imperative to overcome the strategic problems and challenges confronting economic development in Sudan.

Based on the above, this paper examines the structure of labour market and unemployment in Sudan, the aim of this paper is twofold: first, to present some stylized facts on the structure of labour market in Sudan and second to present some stylized facts to examine more extensively the unemployment problem confronting economic development in Sudan. An interesting element in our analysis is that we explain several stylized facts on the labour market, First we explain the relation between the structure of labour market and the demographic structure, participation rates and economic activities, second we show the relation between the structure of labour market and the low skill level and brain drain problems and finally we examine the relation between the structure of labour market and the unemployment and youth unemployment problem in Sudan. We show that the differences in the structure and distribution of the total population defined by age, gender and mode of living have several important implications in the structure of labour market, labour force, participation rates, economic activities, skill level, employment rates and unemployment rates. Moreover, different from the analysis in Sudanese literature we present a more comprehensive analysis of four stylized facts on unemployment problem in Sudan, these include distinction of several types of unemployment; interpretation of unemployment problem from two different endogenous and exogenous perspectives due to endogenous and exogenous causes; analysis of high incidence of unemployment among youth population and high mismatch between educational qualifications –supply- and labour market requirements- demand. Moreover, one advantage of our analysis in this paper is that we explain these stylized facts on labour market and unemployment using new secondary data on population, employment and unemployment based on Sudan Central Bureau of Statistics (2010) the Fifth Sudan Population and Housing Census (2008). One limitation of our analysis in this paper is that the use of figures on registration and employment to refer to supply of and demand for youth and university graduates labour respectively may be somewhat inaccurate and underestimate the actual figures on supply of and demand for university graduates, because not all youth and university graduates looking for jobs are registered for the federal public service recruitment board and also because figures on employment may include youth and university graduates unregistered for the federal public service recruitment board. Apart from this limitation, our analysis in this paper is interesting and useful to

improve understanding since we provide a more comprehensive investigation and discuss the unemployment problem from both endogenous and exogenous perspectives. In addition, our analysis is useful from policy perspective to address the relevant mechanisms and policy issues to reduce unemployment, highlight the role of both public and private labour market institutions and educational policies and the need for incentives, agreement and collaboration between public and private institutions in upgrading skill and reducing unemployment problem in Sudan.

The rest of this paper is organized in the following way. Section 2 explains the general socioeconomic characteristics of Sudan, Section 3 discusses the structure of labour market and unemployment in Sudan and Section 4 concludes.

2. Economic characteristics and strategic problems for development in Sudan

Before assessing the structure of labour market and unemployment problem in Sudan it is useful to start by explaining the general political context and socio-economic characteristics of Sudan. Next, we show the structural problems related to the structure of labour market, unemployment and low skill level in the next section and we attempt to link these to general socio-economic characteristics of Sudan.

The political context in Sudan is characterised by a long history of political instability, continuing civil wars and complex conflict between the north and the south.² Even after the independence of Southern Sudan, Sudan still endures political instability, a lack of sound and systematic institutions and a lack of a commitment to implementing long-run sustainable and balanced economic development plans and strategies.³ This implies that the interaction between these political, economic and institutional factors together have unfortunately continued to

² As for the political context since independence in 1956 and over the past five decades Sudan was ruled by three civilian governments (1956-1958, 1964-1969 and 1985-1989) and three Military governments (1958-1964, 1969-1985; 1989-2010). Sudan suffered from political instability, as the short-lived three civilian governments were often removed and overthrown by military governments. For instance, the first civilian government after independence (1956-1958) was overthrown in 1958 by the Abbud Military Government (1958-1964), the second elected civilian government (1964-1969) was overthrown in 1969 and by the Nimeiri Military Government (1969-1985) and once again the third elected civilian government (1985-1989) was overthrown in 1989 by Al Bashir Military Government (1989-2005). Since the signing and implementation of the Comprehensive Peace Agreement (CPA) in January 2005 Sudan is ruled by the Government of National Unity (GNU) which represents a power-sharing government between the National Congress Party (NCP) of the north and Sudan People's Liberation Movement (SPLM) of the south. The implementation of the CPA implies several important agreed issues, which included the formation of the Government of National Unity (GNU) in 2005, which represents a power-sharing government between the National Congress Party (NCP) of the north and Sudan People's Liberation Movement (SPLM) of the south. Moreover, the implementation of the CPA implies several other important agreed issues, which included the establishment of an interim transitional period of autonomous rule for the South for six years (2005–2011) and it followed by the self-determination for the southern Sudan and a referendum that was held in January 2011 in Southern Sudan that decided on secession from the north. In July 2011 the Southern Sudan was officially gained its independence from Sudan. As for government and politics, the politics of Sudan takes place, in the framework of a federal presidential representative democratic republic, the judiciary is independent and obtained by the Constitutional Court and the legislative power is vested in both the government and in the two chambers, the National Assembly (lower) and the Council of States (upper), the bicameral National Legislature is the official Sudanese parliament consists of 500 appointed members. Before the secession of the Southern Sudan, Sudan is divided into twenty-six states which in turn are subdivided into 87 districts; the ten states in Southern Sudan are subdivided into 84 counties. The states are: Al Jazirah, Al Qadairif, Blue Nile, Central Equatoria, East Equatoria, Jonglei, Kassala, Khartoum, Lakes, North Bahr al Ghazal, North Darfur, North Kurdufan, Northern, Red Sea, River Nile, Sennar, South Darfur, South Kurdufan, Unity, Upper Nile, Warab, West Bahr al Ghazal, West Darfur, West Equatoria and White Nile.

³ In Sudan the available natural resources include agricultural, water and rivers, in addition mineral resources include petroleum and crude oil, natural gas, gold, silver, asbestos, manganese, gypsum, mica, zinc, iron, lead, uranium, copper, kaolin, cobalt, granite, nickel, tin, chrome, and aluminum.

contribute to a low standard of economic development in Sudan as we explain below in the next sections.

The general socio-economic characteristics of Sudan indicate great diversity between Sudan compared to other African, Arab and world countries in terms of population, standard of economic development defined by GNI and GDP per capita and human development index. Table 1 below explains that on average Sudan has a higher population coupled with a lower standard of economic development. The UNDP and World Bank classification of economies puts Sudan among the lower-medium income bracket and among poor and highly indebted economies. Moreover, the United Nations Development Programme – Human Development Index (UNDP-HDI) shows that the average life expectancy, literacy rate and combined enrolment ratios of Sudan are lower than those of other world and Arab countries. Furthermore, Sudan has continued to suffer from macro-economic instability, high rates of poverty, unemployment and debt. Despite the high and increasing inflow of Foreign Direct Investment (FDI) to Sudan (increased from -0.2% of GDP in 1990 to 8.4% of GDP in 2005), but different from other World regions, Sudan suffered from the high increase in debt services both as percentage of GDP (0.4%-1.4%) and as percentage of exports (8.7%-6.5%) over the period (1990-2005). That was most probably because like most African countries, Sudan's economy has relied heavily on a large influx of foreign aid from different sources; Sudan is among the top ten recipients of gross Official Development Assistance during (1990-2007)- see UNDP 2007.

Table 1- General socio-economic characteristics of Sudan⁴

Country	Population (millions) (2010)	Gross national income (GNI) per capita (PPP ^c US\$)	Human Development Index ^a (%)	Life Expectancy (years)	Mean years of schooling	Expected years of schooling ^a	Adult Literacy ^a (%)	Population with at least secondary education (%) ages 25 and older	Tertiary enrolment ratio (% of tertiary school-age population) Gross (%)
	2010 ^a	2010 ^b	2010 ^c	2010 ^a	2010 ^d	2010 ^e	2005–2008a ^e	2010 ^d	2001–2009a ^e
Sudan ^b	43.2	2,051	0.379	58.9	2.9	4.4	69.3	11.5	5.9 ^b
Latin America and the Caribbean	582.7	10,642	0.704	74.0	7.9	13.7	91.1	32.5	36.7
Arab States	348.2	7,861	0.588	69.1	5.7	10.8	72.1		22.7
Europe and Central Asia	410.3	11,462	0.702	69.5	9.2	13.6	97.5	65.1	54.2
South Asia and Pacific	1,974.3	6,403	0.643	72.6	7.2	11.5			20.9
South Asia	1,719.1	3,417	0.516	65.1	4.6	10.0	62.4	21.6	12.8
Sub-Saharan Africa	808.8	2,050	0.389	52.7	4.5	9.0	62.4		5.5
OECD	1,026.3	37,077	0.879	80.3	11.4	15.9		73.8	71.4
High income development	1,052.4	12,286	0.717	72.6	8.3	13.8	92.3	41.0	43.2
Medium income development	3,597.3	5,134	0.592	69.3	6.3	11.0	80.7		17.6
Low income development	1,099.0	1,490	0.393	56.0	4.1	8.2	61.2	14.3	6.0
Least developed countries	854.7	1,393	0.386	57.7	3.7	8.0	59.9		5.4
World	6,908.7	10,631	0.624	69.3	7.4	12.3			25.7

Source: (a) UNDP (2010). Notes: ^a 2007, ^b 2008, ^c PPP – purchasing power parity: pp. 145-146, 186-187, 195-196.

(a) UNDESA (2009d)., (b) Based on data on GNI per capita and GDP per capita in PPP US dollars (current and constant prices) from World Bank (2010g) and implied growth rates of GDP per capita from IMF (2010a)., (c) Calculated based on data from UNDESA (2009d), Barro and Lee (2010), UNESCO Institute for Statistics (2010a), World Bank (2010g) and IMF (2010a)., (d) Barro and Lee (2010), (e) UNESCO Institute for Statistics (2010a).

⁴ The World Bank and United Nations Development Programme (UNDP) Human Development Report classify world countries differently according to income level. We use the World Bank classification of economies that puts Sudan in the lower middle-income category or group.

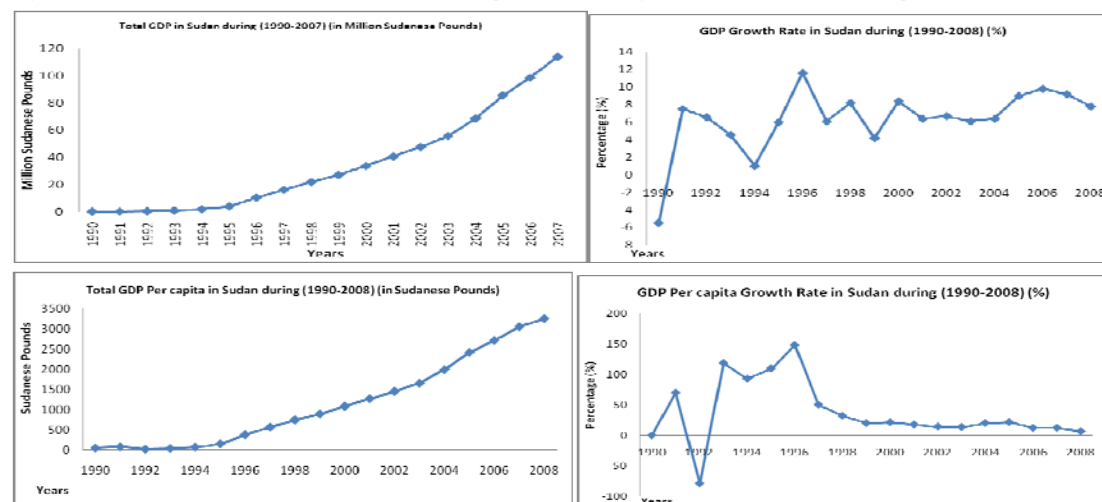
Table 2- The Performance, Structure and Structural Change in Sudan Economy (1990-2009) Basic Indicators of labour force, unemployment and inflation rates in Sudan over the period (1990-2008)

Year	GDP				Inflation rate	Unemplo rate	Exchange	Balance o payment	Balance of Trade			Structure of Sudan Economy (sectors in GDP)		
	Total	Growth F	Per capit	Per capita Growth F					Exports	Imports	Balance	Agricultu	Indus	Services
1990	244.7	5.4	47.7	0	41	14.2	0.45	-76.1	374	618.4	-244.4	30.3	15.4	54.4
1991	276.8	7.5	81	69.8	62.7		0.69	-101.3	308.7	890.3	-581.6	28.7	17.6	53.9
1992	4327.8	6.5	17.2	-78.7	105.4		9.7	-58.1	319.3	820.9	-501.6	33.7	17.1	49.1
1993	5862.1	4.5	37.6	118.4	115	10.3	16.1	37.7	417.3	944.9	-527.6	37.9	17.4	44.5
1994	6351.2	1	72.5	92.7	96.3		29.6	17.9	535.6	1059.6	-524	40.1	16.4	43.5
1995	9880.7	5.9	151.7	109.4	177.2		55.9	-58.1	555.7	1184.8	-629.1	43.1	15.8	41.1
1996	8259.3	5.9	375.9	147.7	76.3	14.3	125	-63.9	620.3	1504.5	-884.2	44.9	14.5	40.6
1997	10684.6	6.3	563.7	50	52.6	18.1	156.9	-36.2	594.2	1421.9	-827.7	47.6	15.1	37.2
1998	11513.6	6.4	743.7	31.9	28.2	15.1	198.8	25.1	595.7	1732.2	-1136.5	48.6	15	36.2
1999	10325	6.7	892.3	20	6.4	15.7	252	111.5	780.1	1256.2	-476.1	49.8	15.8	34.4
2000	11242.8		1,083.1	21.4	8.5	15.2	257.2	81.5	1807	1553	254	46.4	21.4	32.2
2001	12596.6		1,274.0	17.6	4.8	15.0	257.3	-90.04	1547	1457	90	45.6	22.8	31.6
2002	3924	6.5	1,457.4	14.4	8.3	15.8	236	198.72	1949	2179.22	-230.11	46	23.2	30.9
2003	4549	6	1,656.4	13.7	7.7	16.3	261	422.6	2542.2	2536.1	6.07	44	24.1	30.3
2004	5278	7.2	1,991.2	20.2	8.5	16.3	258	730.2	3777.75	3586.18	191.57	40	28.0	32.0
2005	6283	8	2,421.2	21.6	8.5	16.2	245.6	530.5	4824.3	5,946.0	-1121.7	39.0	28.0	32.0
2006	22,217	10.0	2,719.0	12.3	7.2	17.3	2,0248	-208.6	5,656.6	7,104.0	-1,448.1	36.8	27.5	35.7
2007	22,21	10.5	3,059.2	12.5	8.1	19.4	2,0308	-282	8,879.2	7,722.4	1,156.8	35.3	30.6	34.1
2008	26.03	7.8	3,262.6	6.6	14.3	20.7	2,09	21.1	11,670.5	8,229.4	3,441.1	29.3	29.2	41.5
2009	27.63	6.1			11.2		2,32	-502.2	7,833.7	8,528.0	-694.3	31.1	23.9	45.0

Sources: (1) Ministry of Finance and National Economy, (2) Central Bank of Sudan (3) Sudan Central Bureau of Statistics: Sudan Ministry of the Cabinet- central bureau of statistics: Sudan statistical year book: Sudan statistics 1990- 2008: pp. 39-43.

Sources: (1) Ministry of Labour and Administration Reform- Department of Planning and Monitoring and Follow-up. Sources: (2) Central Bureau of Statistics - Migration and Labour Force Survey 1996. (3) Central Bureau of Statistics- Department of Internal Commerce and Pricing. (4) Own calculation based on Sudan Central Bureau of Statistics Population Census Data (2010): The Fifth Sudan Population and Housing Census (2008), (4) Note: Figures for 1998 from Ministry of Finance and National Economy- Annual Economic Survey 2000, Table 7-2, p. 10

Figures 1- 4 – Total and Growth Rates of GDP and GDP Per Capita in Sudan during (1990-2008) (Millions Sudanese pounds) and (%)



Source: Adapted from Sudan Central Bureau of Statistics: Sudan Ministry of the Cabinet- central bureau of statistics: Sudan statistical year book: Sudan statistics 1990- 2008: pp. 39-43

The structure of Sudanese economy has long been characterised by a small share of industry, notably manufacturing; a high share of agriculture and service sectors in GDP and employment. The share of agriculture in GDP increased from 30.3% in 1990 to 49.8% in 1999 and then declined to 31.1% in 2009; the share of the services in GDP declined from 54.4% in 1990 to 34.4% in 1999 and then increased to 45.0% in 2009; the share of industry in GDP increased from 15.4% in 1990 to 15.8% in 1999 and then increased to 23.9% in 2009 (see Table 2 above). In 1999 Sudan began exporting oil and since then has become increasingly dependent on oil exports to the extent that the economy has turned into an oil dependent economy.⁵ Since the late 1990s the implementation of macro-economic reforms policies, along with the positive contribution of oil to Sudan's economy since 1999, has caused a rapid increase in real economic growth, GDP and GDP per capita incomes (see Table 2 and Figures 1-4 above). Consequently, Sudan has moved from having a low income

economy into a lower medium income economy according to World Bank classification. But while the increasing dependence on oil has had some positive effects, it has also sparked a number of negative impacts and raises questions such as the incidence of a Dutch Disease phenomenon as we explain in the next sections.

3. Stylized facts: characteristics and structural problems of the labour in Sudan

Based on the above, it is now useful to explain if the structure of labour market is affected by the analysis presented in section two above. Notably, from the above analysis, we observe that the north-south conflict also contributes to increase unemployment because the civil war not only led to displacement of many workers and job loss but also implied the large spending on defence and security issues rather than prioritizing investment in social development and creation of more employment opportunities, this in turn contribute to increase in unemployment problem in Sudan. Furthermore, since the structure of Sudan economy is now related to oil, it will be useful to briefly examine the impact of oil in the labour market in Sudan. Oil has also affected the labour market because the exploration and production of oil leads to the creation of more employment opportunities, although this is difficult to elaborate due to a lack of accurate data.⁶ The inflow of FDI and the increased wealth from oil has encouraged migration to Sudan, so migrant workers have increased in the labour market, particularly in the private sector, which may also contribute to the growing unemployment rate. Furthermore, oil also affected the structure of wages and has led to a wage differential in Sudan; for instance, the results of the comprehensive industrial survey (2005) indicates that the highest salary for workers in the industrial sector is reported in the petroleum refining industry which is 18 times more than the average wage in the industry.⁷

Based on the above, in this section it is useful to start by explaining the stylized facts on the characteristics and structural problems of labour market in Sudan. First we explain the relation between the structure of labour market and the demographic structure, participation rates and economic activities, second we show the relation between the structure of labour market and the low skill level and brain drain problems and finally we examine the relation between the structure of labour market and the unemployment and youth unemployment problems in Sudan.

⁵Sudan oil output is estimated at 500,000 barrels per day (2007) and oil reserves at 5 billion barrels (2005)- see WB-DTIS, (2008), p.2. Moreover in 2005, Sudanese Energy Ministry estimates total oil reserves at 5 billion barrels.

⁶ For instance, of total labour force estimated at 9,7000,000 in 2001, the share and contribution of oil industries in total employment is very minimal and accounted for only 0.0087% of total employment of labour force in Sudan (2001) and only 0.52% of total employment in the industrial manufacturing sector in Sudan (2001). It is worthy to note that the contribution of oil industries represent only 0.52% of total employment and 0.64% of total number of labour employed in the industrial manufacturing sector in Sudan (2001) but in the meantime oil industries is ranked second in terms of the contribution to industrial value added as it accounts for 11% of total industrial value added in the manufacturing industries in Sudan, this implies that oil industries tend to use more capital intensive techniques and to be a more capital intensive industry. See for instance, Sudan central bureau of statistics Statistical Year Book (2001), Khartoum, November 2003 for the data on the total number of labor force in Sudan in 2001. See for instance, Sudan Ministry of Industry (2005) the Comprehensive Industrial Survey data for (2001) (Tables 12- 13: the industrial survey pp.72-75) for the data on total number and share of oil in total employment and in employment in the industrial manufacturing sector in Sudan in 2001.

⁷ See the Executive Summary of Sudan Comprehensive Industrial Survey, (2005), p. 29.

3.1 Labour market structure, demographic structure, participation rate and economic activities

Before explaining the relation between the structure of labour market and the demographic structure, participation rate and economic activities, it is useful to identify the major stylized facts and characteristics of labour market in Sudan. For instance, we observe that one stylized fact that characterized the labour market in Sudan as in many other Arab and typically developing countries is the dominance-reflected in the large share- of the public (government) sector in total employment compared to the weakness of the private sector. The organizational structure of the labour market is constrained by weak and inefficient regulations and institutional settings, rigidity and lack of dynamism, deficiency in employment, monitoring, planning and skill upgrading; the high incidence of duality (rural-urban; traditional-modern and formal-informal sectors) and prevalence of high rates of unemployment, especially among youth population and child labour.⁸ In addition the labour market is characterized by low participation rates, especially low participation rates for women and the mismatch between educational output (supply) and labour market requirements (demand). These distinctive features of Sudan and Arab labour markets were caused by such fundamental forces as high population and labour force growth rates, macroeconomic fluctuations caused by oil price instability, and the pervasive role of the State in the region's economic activity... A demographic transition which resulted in rapid population growth, slowdown in labour absorption and combined with large-scale shifts of population from rural to urban areas, led to severe pressures on labour markets, especially in urban areas.⁹ In addition to increasing debate that in the Arab oil dependent countries, the structure of labour market suffers from the impact of the Dutch disease.

One stylized fact of labour market in Sudan related to demographic structure for Sudan indicates continuous and rapid increase in total population from 10 million in 1956 to 39 million in 2008; and increase in the growth rate in total population from 2.1 in 1956 to 2.8 in 2008 – see Figures 5-6 below. According to the central bureau of Statistics (2010), data from the 2008 population census indicates that the distribution of population according to the mode of living implies that the majority of total Sudan's populations are rural and nomad population (70.5%) compared to minority of urban population (29.5%). Furthermore, the distribution of population according to gender implies that the majority of Sudan's populations are males (51.27%) as compared to female (48.73%). Moreover, the distribution of population according to the age implies that the majority of total Sudan's populations are aged (5-24) represents about 47.38% of Sudan's total population in 2008, in addition, the share of population with 17 years old and over (52.85 %) is higher than the share of population with 16 years old and less (47.15 %)-see Table 3

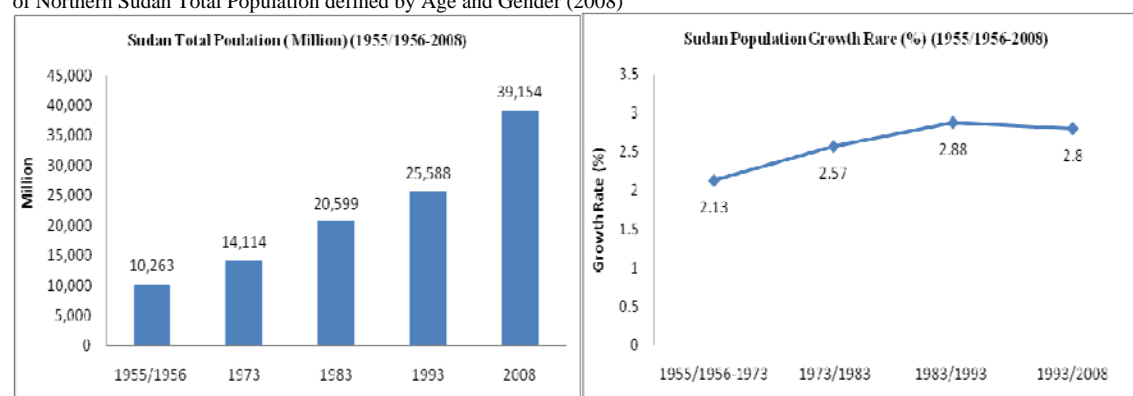
⁸ Based on the UNDP (2010) definition of child labour as the percentage of children ages (5–14) in the labour market the UNDP-HDR (2010) indicates the high rates of child labour in Sudan as the percentage of children ages (5–14) in the labour market in Sudan that accounted for 13% of children ages (5-14) over the period (1999-2007)- see UNDP-HDR (2010), p. 191.

⁹ See for instance, Shaban, Assaad and Al-Qudsi, (1995).

below and Figures 7-8 below.¹⁰ This structure and distribution of total population by mode of living, gender and age will have several important implications in the structure of labour market, notably, labour force, participation rates, economic activities, skill level, employment and unemployment rates as we will explain in this section below.

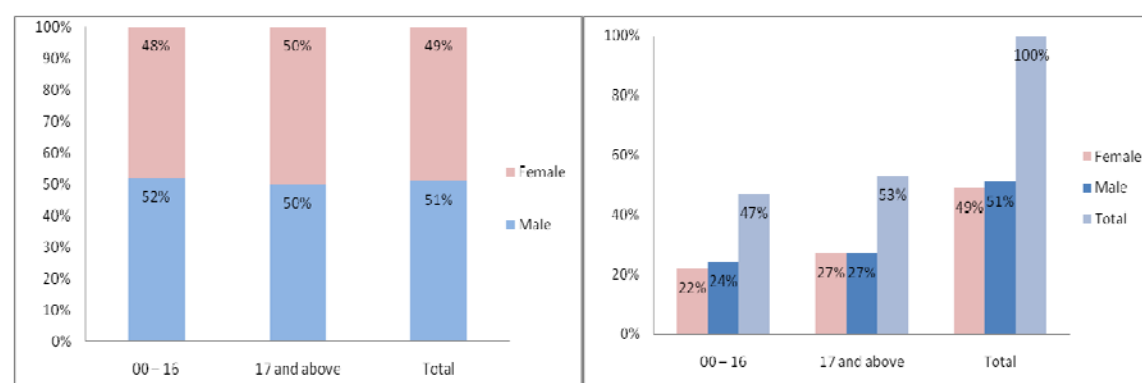
For instance, we observe that the first implication and stylized fact in the labour market in Sudan is that the continuous increase in the total population implies continuous increase in the total labour force from 16.5 in 1998 to 22.5 in 2008 and also increasing though low participation rates.¹¹ The demographic structure, labour force and participation rate in Sudan implies that the low share of Sudanese women in labour force (31.1%) as compared to Sudanese men (72.2%) and total Sudanese labour force (52.4%) and the low participation rate (for 15-24 years old) for Sudanese women (6.08%) as compared to Sudanese men (15%) and total Sudanese participation rate (10.08%). Both crude and adjusted participation rates show continuous rapid increase in the period 1990-1996, in Sudan. Our findings indicate that compared to 1996 in 2008 the crude participation rates for the total population increased to (43.68%), but they declined for men (28.99%) and for women (14.69%), whereas adjusted participation rates declined for men (57.90%) and increased for women (29.42%). Both crude and adjusted labour force participation rates in economic activities defined by mode of living and gender, indicate that the participation rates are higher for people (men and women) living in rural areas compared to people (men and women) living in urban areas and participation rates for women are less than men over the period 1990-2008- see Figures 9-10 below. These findings are consistent with the observed findings from the 1993 population census and 1996 migration and labour force survey. These findings are also consistent with the structure and distribution of population in Sudan in 2008 defined by gender and mode of living as we explained above.

Figures 5-8- Total Population (Million) and Population Growth Rate (%) in Sudan over the period (1955/1956-2008) and the distribution of Northern Sudan Total Population defined by Age and Gender (2008)



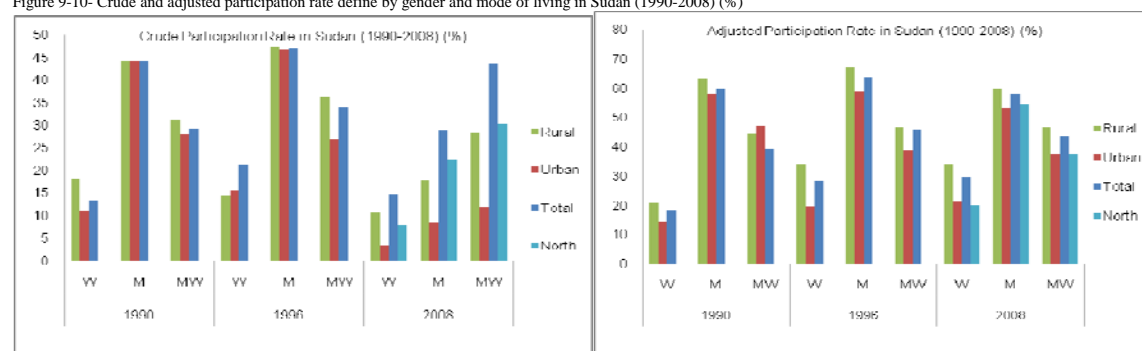
¹⁰ See Sudan Central Bureau of Statistics (2008) "Central Bureau of Statistics: Sudan Statistics and Statistical Year Book: Sudan (1990- 2008)" Sudan central Bureau of Statistics, Sudan Ministry of the Cabinet, 2008, p. 3.

¹¹ See for instance, data from Arab Labour Organization, Sudan Ministry of Labour and Public Service Migration and Labour Force Surveys 1993 and 1996 and Sudan central bureau of statistic (2010) the Fifth Sudan Population and Housing Census (2008)



Source: Adapted from Sudan Central Bureau of Statistics Population Census Data (2010); The Fifth Sudan Population and Housing Census (2008)

Figure 9-10: Crude and adjusted participation rate define by gender and mode of living in Sudan (1990-2008) (%)



Sources: Sources: (1) figures for 1990 obtained from Ministry of Labour and Administration Reform- Department of Planning and Monitoring and Follow-up
Sources: (2) figures for 1996 obtained from Central Bureau of Statistics - Migration and Labour Force Survey 1996. (3) Central Bureau of Statistics- Department of Internal Commerce and Pricing. (4) figures for 2008 obtained from Own calculation based on Sudan Central Bureau of Statistics Population Census Data (2010); The Fifth Sudan Population and Housing Census (2008), (4) Note: Figures for 1998 from Ministry of Finance and National Economy- Annual Economic Survey 2000, Table 7-2, p. 10.

Another stylized fact on the structure of labour market in Sudan is the inconsistent distribution of economically active population defined according to major economic activities (sectoral classification) and gender. For example, the majority of Sudanese are employed in agriculture sector (51.8%; 48.56 %), followed by services sector (23%, 31%), industry (8.9%, 7.65%) and finally few are employed in other activities (1.2%, 12.24%) in 2004 and 2008 respectively.^{12, 13} This structure implies that agriculture is still the predominant activity in Sudan, although its share in employment has gradually declined as other sectors of economic activity have expanded. In the 2008 census almost 48.56% of the work force were involved in agriculture sector, compared with 60.74% in 1993 and 51.08% in 2004. Services, which included a government work force that grew in terms of employment, emerged as the second largest area of activity, encompassing an estimated 31.55% of the economically active population in 2008, compared with 28.04% in 1993 and 23% in 2004. Industrial sector accounted for 7.65% in 2008 compared to about 9.74% in 1993 and 8.19% in 2004- see Table 3 below. Sudan central bureau of statistic (2010) population census data for 2008 indicates that the distribution of economically active population defined by major economic activities (sectoral classification) and gender implies that the majority of Sudanese men are

¹² See for instance, the Arab Labour Organization (2007) for data for 2004 and Sudan central bureau of statistic (2010) population census for data for 2008.

¹³ Agriculture sector includes livestock raising, forestry, fisheries, or hunting, services sector include government work force, wholesale and retail trade, restaurants and hotels, transport, storage and communication, financing, insurance, real estate and business services, community, social and personal services and the industrial sector includes manufacturing, mining, electric power, and construction.

employed in the agriculture sector (48.13%), followed by services (35.9%), industry (10.22%) and other activities (5.75%), similarly, the majority of Sudanese women are employed in the agriculture sector (49.48%), followed by services sector (22.45%), industry (2.27%) and other activities (25.8%). Employed Sudanese men constitute the majority of total employment in all sectors (67.67%), whereas employed Sudanese women constitute the minority of total employment in all sectors (32.33%). Sudanese men employed in agriculture, services and industry sectors (32.57%, 24.29% and 6.92% respectively) are higher than Sudanese women employed in these sectors (16%, 7.26% and 0.73% respectively). This implies that Sudanese men employed in agriculture, services and industry sectors are near to twice, near to three times, and near to seven times Sudanese women employed in these sectors respectively. These findings are consistent with the results from the 1993 population census and 1996 migration and labour force survey. These findings are also consistent with the structure and distribution of population in Sudan in 2008 defined by gender as we explained above.

Table 3- Economically active population according to economic activities (sectoral classification) and employment status defined by gender in Sudan in 1993-2008 (%)

Economic activities	1993			2004			2008			2008		
	M	W	MW	M	W	MW	M	W	MW	M	W	
Agriculture Hunting, Forestry and Fishing	38.79%	21.94%	60.74%	32.6	18.46	51.08	32.57%	16.00%	48.56%	48.13%	49.48%	
Industry	9.09%	0.65%	9.74%	7.63	1	8.19	6.92%	0.73%	7.65%	10.22%	2.27%	
Manufacturing	4.81%	0.54%	5.35%	4.04	0.46	4.5	3.09%	0.43%	3.52%	4.57%	1.32%	
Services	23.51%	4.53%	28.04%	19.61	4	23	24.29%	7.26%	31.55%	35.90%	22.45%	
Activities Not Adequately Defined or Classified	1.07%	0.41%	1.49%	0.64	0.56	1.2	3.89%	8.34%	12.24%	5.75%	25.80%	
Total	72.46%	27.54%	100	60.48%	24.02%	83.47%	67.67%	32.33%	100.00%	100.00%	100.00%	

Sources: adapted from Arab Labour Organization (2007); (2) Central Bureau of Statistics- Department of Internal Commerce and Pricing. (3) Own calculation based on Sudan Central Bureau of Statistics Population Census Data (2010); The Fifth Sudan Population and Housing Census (2008).

3.2. Labour market structure, the low skill level and brain drain problems

Another stylized fact on the structure of labour market in Sudan can be observed from the skill level defined by occupation (defined by the international definition of major occupational groups classification) and education (defined by school attendance, literacy and education attainment) defined by gender. For example, the definition of skill according to occupation classification indicate that the majority of Sudanese economically active population or workers are medium and low skilled (86%; 88%) and minority (14%; 12%) are high skilled in 2004 and 2008 respectively.¹⁴ In 2004 only 14% of men are high skilled and 86% are medium and low skilled, only 15% of women are high skilled and 85% are medium and low skilled, women are slightly more skilled than men. In 2008 only 13% of men are high skilled and 79% are medium and low skilled, only 10% of women are high skilled and 84% are medium and low skilled, men are slightly more skilled than women. The majority of Sudanese workers are employed in blue collar occupation (70%, 69.4%), while the minority are employed in white collar occupation (30%, 24.4%) in 2004 and 2008 respectively. In 2004 only 33% of men are employed in white collar occupation, while 67% of men are employed in blue collar occupation, only 24% of women are employed in white collar occupation, while 76% of women are employed in blue collar occupation. In 2008 only 23.24% of men are employed in white collar occupation, while 73.42% of men are employed in blue collar

occupation, only 26.9% of women are employed in white collar occupation, while 61.03% of women are employed in blue collar occupation-see Table 4 below. Moreover, our results from Sudan central bureau of statistic (2010) population census data for 2008 indicate the low skill level and differences in skill level in Sudan that appear in terms of low school attendance, literacy rate and education attainment defined by gender and mode of living. For instance, the distribution of total Sudan population 6 years of age and over according to school attendance and literacy rate implies that only little above half of Sudan population 6 years of age and over are currently and/or previously attending school (50.87%) and are literate (51.59%), while near to half of Sudan population 6 years of age and over have never attended school (44.62%) and are illiterate (45.19%). The distribution of population 6 years and above according to education attainment and currently and/or previously school attendance implies that the majority are with less than secondary education and with intermediate, primary or less than primary education (76.80%), this is followed by secondary and post-secondary diploma education (13.93%), and finally followed by only minority with above secondary education (5.32%) -including university first degree and college education (4.70%) and post graduate diploma, Master's degree and Ph.D. degree (0.62%).¹⁵ In addition, the distribution of population 6 years of age and over according to current school attendance implies that the majority are with less than secondary education and with intermediate, primary or less than primary education (73.59%), followed by secondary and post-secondary diploma education (15.40%), and finally followed by only minority with above secondary education (6.12%)-including 5.92% with university first degree and college education and 0.20% with Masters and Ph.D. degree education. Moreover, our results from Sudan central bureau of statistic (2010) population census data for 2008 indicate the low skill level and differences in skill level in Sudan that appear in term of low school attendance, literacy rate and education attainment defined by gender and mode of living. For instance, the skill level defined by school attendance, literacy rate and education attainment for male are higher than women and for urban are higher than rural population- see Table 5 below. These findings are consistent with the structure and distribution of population in Sudan in 2008 defined by gender and mode of living as we explained above.

¹⁴ See for instance, the Arab Labour Organization (2007) for data for 2004 and Sudan central bureau of statistic (2010) population census for data for 2008.

¹⁵ The distribution of population 6 years and above according to education attainment and currently and/or previously school attendance implies that about 8.30% of total Sudan population 6 years of age and over are without educational attainment, it implies that the majority are with below primary education (42.58%), this is followed by primary education (14.84%), secondary education (12.83%), intermediate education (4.84%), university first degree education (4.70%), post secondary diploma education (1.10%), post graduate diploma education (0.29%), Masters degree (0.24%) and Ph.D. degree (0.09%).

Table 4 - Economically active population defined according to major occupational groups classification, defined by gender in Sudan (2004-2008) (%)

Major Occupational Groups ¹⁶ by gender and year	2004			2008			2008		
	M	W	MW	M	W	MW	M	W	North
White Collar high skilled (WCHS)	14.05%	14.82%	14.27%	8.61%	2.94%	11.55%	12.73%	9.08%	10.10%
White Collar low skilled (WCLS)	19%	9.05%	16.2%	7.11%	5.76%	12.88%	10.51%	17.83%	6.09%
Blue Collar high skilled (BCHS)	46.90%	69.59%	53.26%	28.58%	15.28%	43.86%	42.24%	47.25%	24.13%
Blue Collar low skilled (BCLS)	20.04%	6.53%	16.25%	21.10%	4.46%	25.56%	31.18%	13.78%	22.03%
Not Stated				2.26%	3.90%	6.16%	3.35%	12.06%	6.16%
Total	100.00	100	100.						
White Collar (WC= WCHS + WCLS)	33.05%	23.87%	30.47%	15.72%	8.70%	24.42%	23.24%	26.90%	16.19%
Blue Collar (BC=BCHS +BCLS)	66.94%	76%	70%	49.68%	19.73%	69.41%	73.42%	61.03%	46.16%
High skilled (HS= WCHS)	14%	15%	14%	8.61%	2.94%	11.55%	12.73%	9.08%	10.10%
Medium and Low skilled (MLS=WCLS + BCHS+ BCLS and not stated)	86%	85%	86%	56.79%	25.50%	88.45%	82.21%	95.99%	58.41

Sources: Adapted from the Arab Labour Organization (2007), (2) Central Bureau of Statistics– Department of Internal Commerce and Pricing. (3) Own calculation based on Sudan Central Bureau of Statistics Population Census Data (2010): The Fifth Sudan Population and Housing Census (2008).

Table 5 - Sudan-population 6 years of age and over by school attendance, literacy, currently and previously attending school defined by age, gender and mode of living (2008)

(a) Table 10 - Sudan-population 6 years of age and over by school attendance and literacy defined by age, gender and mode of living									
Group	Attended (Currently and Previously Attended)			Never Attended	Not Stated	Total	Literacy		
	Currently	Previously	Total				Literate	Illiterate	Not Stated
Total	25.50%	25.38%	50.87%	44.62%	4.51%	100%	51.59%	45.19%	3.22%
Male	14.07%	14.49%	28.57%	19.78%	2.01%	50.35%	29.05%	19.78%	1.52%
Female	11.42%	10.88%	22.30%	24.84%	2.50%	49.65%	22.54%	25.41%	1.70%
Urban	10.44%	11.89%	22.33%	7.02%	1.22%	30.57%	22.56%	7.21%	0.80%
Rural	14.47%	13.03%	27.50%	31.88%	2.83%	62.20%	27.90%	32.31%	1.99%
Nomad	0.59%	0.46%	1.04%	5.72%	0.47%	7.23%	1.13%	5.68%	0.43%
(b) Sudan population 6 years of age and over currently and previously attending school by education attainment, age, gender and mode of living									
Group	Total	Below secondary: intermediate, primary and below		Secondary and post-Secondary Diploma		Primary and Intermediate and Secondary		University first degree and above university	
									Not Stated
Total	100%	76.80%	13.93%	94.22%	4.70%	0.62%	3.97%		
Male	56.16%	43.29%	7.80%	52.94%	2.52%	0.39%	2.15%		
Female	43.85%	33.50%	6.13%	41.26%	2.18%	0.21%	1.82%		
Rural	43.89%	29.56%	8.52%	39.70%	3.51%	0.47%	1.83%		
Urban	54.06%	45.42%	5.32%	52.48%	1.17%	0.13%	2.02%		
Nomad	2.05%	1.81%	0.10%	2.02%	0.02%	0.00%	0.12%		
(c) Sudan population 6 years of age and over currently attending school by grade attending, age in single years and sex									
Group	Total	Below secondary: intermediate, primary and below		Secondary and post-Secondary Diploma		Primary and Intermediate and Secondary		University first degree and above university	
									Not Stated
Total	100.00%	73.59%	15.40%	88.68%	5.92%	0.20%	4.89%		
Male	55.20%	40.65%	8.62%	49.07%	3.06%	0.11%	2.75%		
Female	44.80%	32.94%	6.78%	39.60%	2.86%	0.09%	2.14%		
Urban	40.94%	26.82%	7.91%	34.56%	4.07%	0.15%	1.99%		
Rural	56.76%	44.94%	7.26%	52.06%	1.82%	0.04%	2.71%		
Nomad	2.30%	1.84%	0.24%	2.07%	0.04%	0.00%	0.19%		

Source: Source: Own calculation based on Sudan Central Bureau of Statistics Population Census Data (2010): The Fifth Sudan Population and Housing Census (2008). Below secondary includes: intermediate, primary and below primary includes below primary, without educational Attainment, and Khalwa, secondary and less than university includes secondary and post-Secondary/ Diploma Programme, university includes university and colleges, higher than university includes post graduate diploma, Master and PhD degree

One stylized fact on the labour market in Sudan is that since long Sudan remains a labour exporting country, especially to the Arab rich oil Gulf countries, for instance, since long many males Sudanese have worked in other Arab Gulf states, notably, the migration of high skill led to brain drain problem in Sudan.¹⁷ Based on the conventional views in the literature on the incidence of the

¹⁶ The ILO International Standards Classification of Occupations (ISCO) are aggregated in the following way (high skilled includes only the category of WCHS, while medium and low skilled include all other categories: WCLS, BCHS and BCLS): White-Collar high-skilled (WCHS) includes legislators, senior officials, managers, professionals, technicians and associate professionals.

White-Collar low-skilled (WCLS) includes clerks, services workers, shop and market sales workers.

Blue-Collar high-skilled (BCHS) includes skilled agricultural and fishery workers, craft and related trade workers.

Blue-Collar low-skilled (BCLS) includes plant and machine operators and assemblers and elementary occupations.

¹⁷ "The term human capital flight, more commonly referred to as "brain drain", is the large-scale emigration of individuals with technical skills or knowledge. The reasons usually include two aspects which respectively come from countries and individuals. In terms of countries, the reasons may be social environment (in source countries: lack of opportunities, political instability, economic depression, health risks; in host countries: rich opportunities, comparatively good political system, developed economy, better living conditions). In terms of individual reasons, there are family influences (overseas relatives, and personal preference: preference for exploring, ambition for an improved career, etc.). Although the term originally referred to technology workers leaving a nation, the meaning has broadened into: "the departure of educated or professional people from one country, economic sector, or field for another, usually for better pay or living conditions". Brain drain is usually regarded as an economic cost, since emigrants usually take with them the fraction of value of their training sponsored by the government or other organizations. It is a parallel of capital flight, which refers to the same movement of financial capital. Brain drain is often associated with de-skilling of emigrants in their country of destination, while their country of emigration experiences the draining

brain drain in the typically developing countries, in our view the main reasons for the incidence and continuation of brain drain in Sudan can be perceived from both country and personal perspectives. From the country perspective, the main reasons are related to internal environment in Sudan due to lack of employment opportunities, political instability and economic instability; in host countries: rich employment opportunities and better living conditions. From the personal perspective the main reasons include family influences (overseas relatives, and personal preference: preference for an improved career, and better living conditions etc.). The most important reason for the continuation of brain drain in Sudan is particularly because the low standard of economic development led to low GDP per capita, which implies that the high skills are not financially rewarded. The main consequences of the brain drain problem in Sudan is that the brain drain regarded as an economic cost, since emigrants usually take with them the fraction of value of their training sponsored by the government or other organizations. Moreover, the brain drain implies that Sudan experiences the draining of skilled individuals and this contributes to vicious circle of underdevelopment in Sudan as a low-income country. This problem of a brain drain implies a loss to Sudan that may have amounted to a considerable percent of its professional and skilled work force. For instance, over the period (2005-2008) the average share of white collar high and white collar Sudanese migrants workers represent about 8.57% and 11.39% of total Sudanese migrant workers respectively. Notably, the share of white collar high continuously increased from 5.87% to 9.42%, 7.71% and 9.83% in 2005, 2006, 2007 and 2008 respectively, and the share of white collar increased from 12.66% to 13.03%, 18% and then declined to 6.6% in 2005, 2006, 2007 and 2008 respectively- see Table 6 below.

Table 6- The Brain Drain: Sudanese working abroad with legal contracts, classified by occupation over the period (2005-2008)

Total	Total				Share in total (%)				
	2005	2006	2007	2008	2005	2006	2007	2008	2005-2008
	8447	8302	13854	22144	52747	100%	100%	100%	100.00%
White Collar High	496	782	1068	2177	4523	5.87%	9.42%	7.71%	9.83%
White Collar Low	573	300	1426	2481	4780	6.78%	3.61%	10.29%	11.20%
White Collar	1069	1082	2494	1363	6008	12.66%	13.03%	18.00%	6.16%
Blue Collar High	5878	4810	6838	14416	31942	69.59%	57.94%	49.36%	65.10%
Blue Collar Low	1500	2410	4522	15652	24084	17.76%	29.03%	32.64%	70.68%
Blue Collar	7378	7220	11360	18192	44150	87.34%	86.97%	82.00%	82.15%

Source: Ministry of Labour and public service- Annual Reports

In addition, as a result of the brain drain problem which implies a shortage of professional and skilled Sudanese workers we find the recent phenomena of brain gain of foreign skilled workers which is most probably related to the effects of globalization and increasing foreign investment,

of skilled individuals. The term brain drain was coined by the Royal Society to describe the emigration of "scientists and technologists" to North America from post war Europe. Another source indicates that this term was first used in the United Kingdom to describe the influx of Indian scientist and engineers. The converse phenomenon is "brain gain", which occurs when there is a large-scale immigration of technically qualified persons. Brain drain is common amongst developing nations, such as Africa, former colonies of the island nations of the Caribbean, and particularly in centralized economies such as former East Germany and the Soviet Union, where marketable skills were not financially rewarded. Two parties involved in brain drain are developing countries and developed countries. On the left side, because of the disadvantaged social environment (of opportunities, political instability, economic depression, health risks, etc), family influence (overseas relatives, etc), and personal preference (prefer exploring, ambitious to seek brilliant career, etc), many people in developing countries actively choose to migrate. Most of migrations from developing countries are those wealthy or skilled people, whose leaving results in brain drain and slow development of home countries. This contributes to a vicious circle for developing countries (low-income countries). On the other side, the advantaged social environment (rich opportunities, comparatively good political system, developed economy, better living conditions, etc) in developed countries attract talents from other areas, which contribute to brain drain, and finally forms a virtuous circle" See http://en.wikipedia.org/wiki/Brain_drain, accessed in November 14, 2010.

notably foreign investment in oil sector, that is largely depending on foreign skills and foreign capital, the easy inflow and employment of foreign workers caused serious implication because of competition to substitute the local and domestic workers. The presence and high share of skilled foreign workers in total employment of foreign workers means that the majority of foreign workers were employed in high skilled jobs and competed with Sudanese on the available job opportunities in Sudan. Notably, the share of white collar high foreign workers increased from 61% to 80%, 89% and 88% in 2002, 2003, 2005 and 2006 respectively, and the share of white collar foreign workers increased from 77% to 90%, 96% and 91% in 2002, 2003, 2005 and 2006 respectively- see Table 7 below.

Table 7- Distribution of foreign workers by occupational classification (%) in Sudan (2002-2006)

Distribution of foreign workers by occupational classification	2002	2003	2004	2005	2006
Total	100%	100%	100%	100%	100%
White Collar High	61%	80%	84%	89%	88%
White Collar Low	16%	11%	12%	7%	3%
White Collar	77%	90%	96%	96%	91%
Blue Collar High	0%	7%	0%	4%	1%
Blue Collar Low	23%	3%	4%	0%	8%
Blue Collar	23%	10%	4%	4%	9%

Source: Adapted from the Statistics of Ministry of labour.

3.3. Labour market structure, unemployment and youth unemployment problems

One stylized fact in the labour market in Sudan is the incidence of chronically serious unemployment crisis - see Table 2.2 above. Sudan like many other Arab countries not only faces many challenges such as low per capita GDP, low growth of labour productivity, the incidence of high poverty rate, but also the persistence of high and rising unemployment rate. This persistent unemployment problem may reflect both a general problem of growth and development and a structural problem of labour market and inequality and may lead to several serious implications on hindering the process of development and economic growth. The discussion of unemployment in Sudan is important because of higher and persistent rates of unemployment- now in excess of 20 percent-see Table 2 above and Figure 11 below. Several studies in Sudanese literature (See: cf. Ministry of Labour Report 2004-2005) indicate the problem due to the demand side, but it is also essential to reflect the interaction between the supply- demand sides and examine the problem from both perspectives. The UNDP report (2006 pp. 92-94) shows the broad employment trends in Sudan during the 1990s and illustrates a process of jobless growth over that period and highlight the need for employment creation or generation and poverty alleviation in Sudan. Different from the several studies in Sudanese literature we explain below four stylized facts on the unemployment problem in Sudan including the presence of several types of unemployment; the interpretation of unemployment crisis in Sudan from two different endogenous and exogenous perspectives due to endogenous and exogenous causes; the high incidence of unemployment among youth population and the big mismatch between educational qualifications –supply- and labour market requirement-demand. Moreover, one advantage of our analysis is that we explain these stylized facts using a

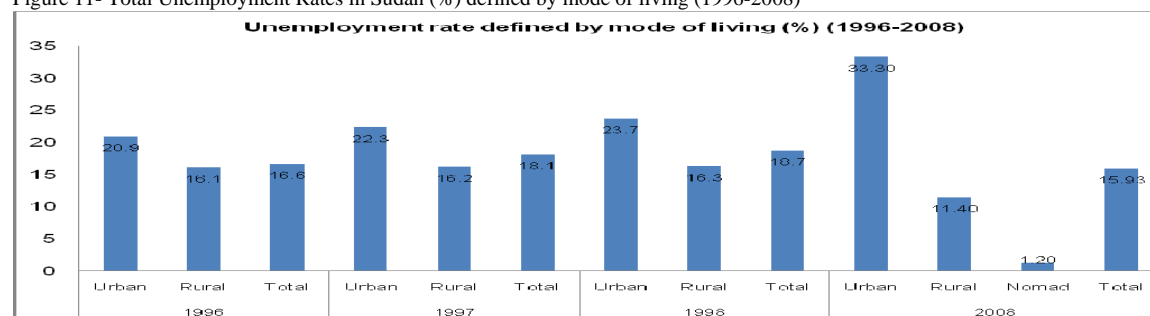
new data on unemployment based on Sudan central bureau of statistic (2010) population census (2008).

The first stylized fact on the incidence of unemployment in Sudan is the prevalence of several different kinds or types of unemployment including structural, voluntary, involuntary, seasonal, frictional, cyclical, technological, youth, disguised, hidden, temporary and open chronically unemployment in Sudan. The presence of seasonal unemployment in Sudan can be perceived from the fact the majority of Sudanese labour force are still hired in the agricultural sector which is characterized by relative availability of seasonal work in agriculture. In addition the high intensity of labour and family workers in the agriculture sector probably also has caused the disguised and hidden unemployment in Sudan. Furthermore, the presence of hidden and disguised unemployment can be perceived from the fact that the public sector is still the main source of job creation in Sudan, it has a limited capacity to hire more workers but the commitment of the government to hire beyond the capacity of the public sector has caused low productivity of workers—at least compared to other Arab countries. Furthermore, the presence of frictional unemployment can be perceived from the geographical (temporary) movement of people (displaced workers and internal refugees). Moreover, the presence of cyclical unemployment can be perceived from the economic crises over the past decades in Sudan. In addition, the presence of technological unemployment can be perceived from the recent expansion in the use of technology, especially ICT in the services, notably banking sector in Sudan. We observe that the use of new technologies in the banking sector caused displacement and substitution of workers, and contributed to reduction in the number of employment opportunities. For instance, according to the results of the survey presented in the Central Bank of Sudan (2004) aimed at assessing the impacts of the use of new technologies in Sudanese banking system in 2004, 56.5% of the respondents indicate that the use of new technologies in the banking system has some impacts on employment and resulted in the reduction of the number of workers and hence lead to an increase in unemployment in Sudan.¹⁸ Furthermore, the presence of youth unemployment can be perceived from the recent information which indicates the rapid increase in unemployment rate in Sudan especially the youth unemployment rate that reached around 18% of total youth in Sudan, youth unemployment also increased amongst university graduates. In addition, the presence of involuntary unemployment can be perceived from the presence of high unemployment among youth and university graduates can be interpreted partly as compulsory unemployment and partly also structural unemployment. Moreover, the presence of voluntary unemployment can be perceived from the low participation rate, especially for women (housewife). Furthermore, the presence of structural unemployment either temporary or open chronically is persistent for a long time and it can be perceived from the consequences of the structural reform and the mismatch between educational qualifications for

¹⁸ See the Central Bank of Sudan (2004), p. 36.

youth and requirements in labour market. Moreover, the presence of open chronically – persistent – long-term unemployment, is perceived from the fact that the problem of unemployment existed throughout much of the period (1973-2011). For instance, in Sudan, since 1973 the rate of unemployment rapidly increased and even it is more than doubled over the past fifteen years over the period (1993-2008), for instance, the rate of unemployment increased from 10.3% in 1993 to 20.7% in 2008, which implies that the unemployment problem remains chronically persistent problem in Sudan– See Table 2 above and Figure 11 below.

Figure 11- Total Unemployment Rates in Sudan (%) defined by mode of living (1996-2008)



Sources: (1) Figures for 1996 obtained from Central Bureau of Statistics - Migration and Labour Force Survey 1996. (2) Central Bureau of Statistics– Department of Internal Commerce and Pricing. (3) Figures for 1997/1998 from Ministry of Finance and National Economy- Annual Economic Survey 2000, Table 7-2, p. 10, (4) Figures for 2008 obtained from Own calculation based on Sudan Central Bureau of Statistics Population Census Data (2010): The Fifth Sudan Population and Housing Census (2008).

The second stylized fact is the interpretation of unemployment crisis in Sudan from two different endogenous and exogenous perspectives due to exogenous and endogenous causes. The exogenous causes include the implications of the internal refugees and migration due to environmental problem, draught and desertification, civil war and conflict, the influx of refugees from other neighbouring countries, imbalanced development strategies, globalization and the use of foreign workers. The exogenous causes also includes other factors, for instance, the drop in world oil prices in the 1980s, the Gulf War in the early 1990s and the recent increasing move towards nationalization of jobs in the Arab Gulf countries, together caused the Arab Gulf states to cut back drastically on their expatriate workers, which resulted in the departure of the thousands of Sudanese workers based in these countries, leaving many of their possessions behind, and leading in turn to increased unemployment in Sudan. Unemployment is also caused by the exogenous environmental problems, for instance unemployment figures were affected by the severe drought that spread throughout Sudan in the 1980s. In 1983-84, for example, several million people migrated from the worst hit areas in both the west and the east to Khartoum and other urban areas along the Nile. Many remained in these areas once the drought had eased, living in shanty towns and contributing to unemployment or underemployment in the cities. In addition, more than 1 million people from the south migrated to the north, as a result of the civil war and famine in these areas. Moreover, the endogenous causes include the deficient demand caused by the deficient macroeconomic policies: privatization; deficient public sector, deficient private sector, structural reform, mismatch between educational output and labour market need, unemployment caused by labour market policies, educational policies, and the use of new technologies). In particular, the considerable reduction in

the aggregate demand and demand for labour is caused by the liberalization, structural adjustment programmes and privatization of state owned enterprises during the 1990s that contributed to increased unemployment of the labour force (see Dagdeviren and Mahran (2004). Moreover, the deficiency and low employment of the private sector also contributed to unemployment in Sudan (see Ministry of Labour Report 2004-2005). In addition, we find that the inflation rate is one of the very important endogenous factors that affected the unemployment problem though it does not received adequate analysis in Sudanese literature. For this reason, our analysis in this chapter fills this gap in Sudanese literature and discusses the correlation between inflation rates and unemployment rates. For instance, our findings imply that the increase in unemployment rates seem to be correlated with the increase in inflation rates in Sudan in the period 2000-2008. For instance, When using data and figures on unemployment rates and inflation rates over the period (1990-2008) –presented in Table 2 above- and using the ordinary least squares method to examine the correlation between inflation and unemployment rates in Sudan we find positive and significant correlation between unemployment rate and inflation rate for the case of Sudan for the period 2000-2008. We find negative significant correlation between inflation rate and unemployment rate over the period (1990-2008), and negative insignificant correlation between inflation rate and unemployment rate over the period (1990-2000). Our findings on the negative correlation between inflation rate and unemployment for the periods (1990-2008) and (1990-2000) are consistent with the studies in the literature in support of the Phillips curve.¹⁹ But our result on the positive correlation between inflation rate and unemployment for the period (2000-2008) is opposite to the findings for the periods (1990-2008) and (1990-2000) and is different from the findings in support of Phillips curve. These contrasting findings for the periods (1990-2000) and (2000-2008) implies that the correlation between inflation rates and unemployment turned from a negative into a positive correlation in Sudan- see Table 8 below and Figures 12-17 below. The major policy implication from our findings on a significant positive correlation between inflation and unemployment rates for the case of Sudan for the period (2000-2008), implies that an increase in inflation rates have caused an increase in unemployment rates over the period (2000-2008), and so macroeconomic policies aimed at or targeting reducing inflation rates would also contribute to reduce unemployment rates- see Table 8 below.

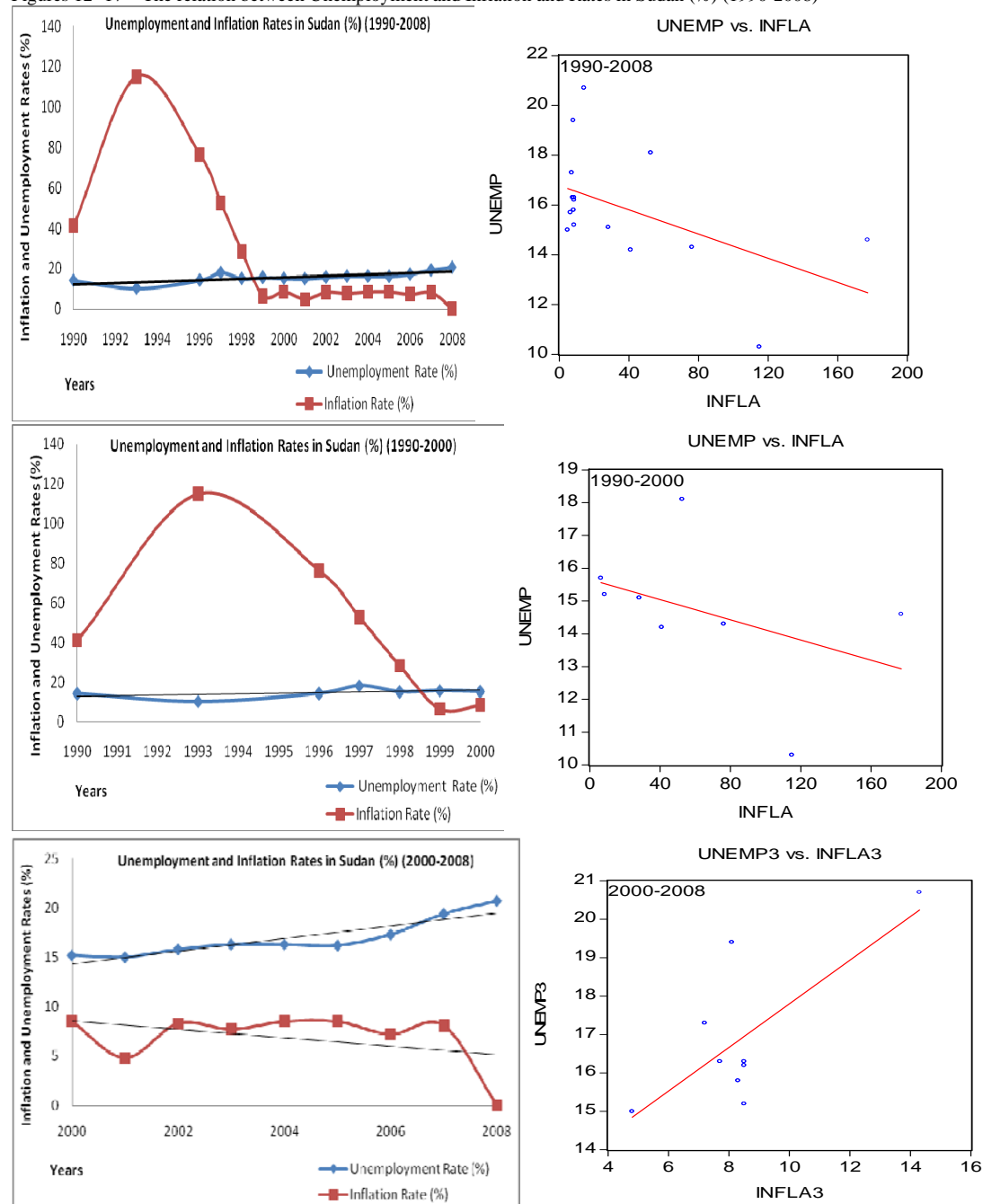
Table 8- Correlation between unemployment and inflation rates in Sudan (1990-2008)

Year	SPSS			E-VIEWS		
	Coefficient (t-value)	N	R ²	Coefficient (t-value)	N	R ²
1990-2008	-0.024** (-2.192)	16	0.256	-0.024** (-2.192)	16	0.256
1990-2000	-0.015 (-1.119)	8	0.173	-0.015 (-1.1197)	8	0.173
2000-2008	0.567** (2.857)	9	0.538	0.567** (2.857)	9	0.538

**Correlation is significant at the 0.5 level of significance.

¹⁹ Phillips curve firstly used by Phillips (1958), it indicates a negative correlation between inflation rates and unemployment rates.

Figures 12- 17 – The relation between Unemployment and Inflation and Rates in Sudan (%) (1990-2008)

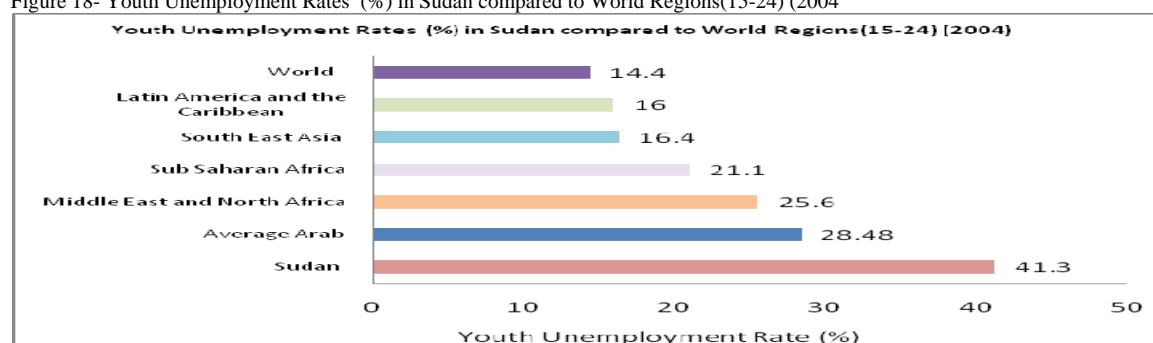


Source: Own calculation based on data obtained from (1) the Central Bank of Sudan, (2) the central bureau of statistics (3) Ministry of Finance and National Economy- and (4) Ministry of Labour and public service Annual Economic Reports (various issues)

The third stylized fact on the incidence of unemployment in Sudan is the high unemployment among youth population- see Figures 18-24 below. Sudan like many other typically developing countries not only suffered from high annual population growth rate (2.8%) and a very high rate of unemployment (20.7%) but also the population structure in Sudan as in many other Arab countries -with a high percentage of the young- makes the situation of unemployment even more worse and difficult as most of the population is under 25 years of age,” this category of young people represents 22.9% of Sudan total population in 2006, such a population structure has prompted the

need to create more job opportunities and is anticipated to put more pressure in the future demands for jobs in Sudan. This situation lead to a very high rate of unemployment among youth population, for example, according to Arab Labour Organization (2007) data for 2004 indicates that the high rates of youth unemployment among Sudanese youth (41.25%), females (43.25%) and males (36.64%). The estimated unemployment among Sudanese youth (41.25%) is among the highest in the world: 2.9% as much as the international world rate, 2.6% as much as in Latin America and the Pacific rate, 2.5% as much as in South East Asia rate and 1.4% as much as the Arab rate - see Figure 18 below. This worse situation has placed Sudan as the fifth worst ranked after Algeria, Iraq, Mauritania and Somalia amongst the Arab countries”.²⁰

Figure 18- Youth Unemployment Rates (%) in Sudan compared to World Regions(15-24) (2004)



Source: Arab Labour Organization (2007)

This situation would not only resulted in unemployment but also caused a state of mismatch and underemployment in Sudan as some people were forced to take up jobs for low compensation packages that do not suit their qualifications.” (cf. Ministry of Labour Report 2004-2005).²¹ The above findings on the high rate of unemployment for youth population is also consistent with the findings based on the data from Sudan Census data for 1993 and Ministry of Labour and Public Service Migration and Labour Force Surveys 1993 and 1996 that show the presence of persistent unemployment crisis in Sudan and the rising trend since 1979 amongst total population men and women in rural and urban areas. As for the incidence of unemployment according to age groups in 1996, one should realize that for all population the highest rate of unemployment is reported amongst the youth population (15-24) it was estimated at 28.4% and for youth 15 years and over, it was estimated at 15.1%, it followed by age group (25-54) estimated at 12.1%, followed by age group above 64 estimated at 11.4%, followed by age group (55-64) estimated at 10.3%. Therefore, data for 1996 implies that the incidence of open unemployment according to age and gender was higher among youth population, notably, youth women were likely to be more unemployed compared to youth men. Youth unemployment increased from 28.4% in 1996 to 29% and 30.8% in 1997 and 1998 respectively. The distribution of unemployment according to education level indicates that for total population, unemployment is high for primary education (33.8%), followed

²⁰ See for example Arab labor organization and International Labor Organization (2007) recent statistics for 2006.

by illiterate (29.9%), illiterate/basic (21.6%), secondary (11.2%) and above secondary (3.5%). The unemployment rate according to education level indicates that for all youth total unemployment (28.3%) is high for above secondary (48.7%), followed by secondary (35.6%), primary (34.6%), illiterate/basic (25.59%) and illiterate (23.4%). Our findings based on Sudan central bureau of statistics (2010) population census data for 2008 implies that the structure and distribution of the total population and labour force defined by age, gender, mode of living and education attainment have several important implications in the employment rates and unemployment rates. Notably; we find that for the total labour force, employment rates and unemployment rates for men are higher than women and for rural are higher than urban. Moreover, we find that the distribution of unemployment by age groups indicates that the highest unemployment is for the age group (15-24) 32.80%, it followed by the age group (25-39) 32.44%, age group (10-14) (13.80%), age group (40-59) (14.57%); and finally age group 60 and over (4.37%). These findings are consistent with the findings from the 1993 population census and 1996 migration and labour force survey. These findings are also consistent with the structure and distribution of population in Sudan in 2008 defined by gender and mode of living as we explained above. Moreover, we find that for the economically active population both employment and unemployment rates are higher for primary education, followed by secondary and post-secondary education respectively. Furthermore, we find that for the economically inactive population the expectations of no hope to find a job (or the potential unemployment) are higher for primary education, followed by secondary and post-secondary education respectively- See Table 9 below. These findings together imply the importance of education in reducing the incidence of unemployment.

Table 9- Total population, labour force, economically active population, economically inactive population, employment and unemployment for population 10 years and above defined by age, gender, mode of living, main geographical areas and educational attainment in Sudan (2008).

	Total Population	Total labour force	Total Economically Active	Total Employe	Total Unemployed	Total Unemployed	Total economically inactive	REASON_REC	
								No hope to fin	Full time Stu
All Sudan: Age groups									
All Sudan	100.00%	100.00%	43.68%	84.07%	15.93%	100%	48.80%	10.28%	40.70%
10 - 14	18.58%	18.58%	4.19%	7.08%	2.52%	15.81%	13.18%	2.78%	21.03%
15 - 24	27.98%	27.98%	9.95%	17.56%	5.23%	32.80%	15.89%	3.50%	18.02%
25 - 39	28.56%	28.56%	15.98%	31.42%	5.17%	32.44%	10.13%	2.36%	1.70%
40 - 59	17.48%	17.48%	10.60%	21.93%	2.32%	14.57%	5.69%	1.74%	0.14%
60 and over	7.40%	7.40%	2.96%	6.07%	0.70%	4.37%	3.92%	0.33%	0.01%
All Sudan: Educational attainment									
No Qualifications	4.81%		6.08%	6.13%	5.18%	5.18%	1.99%	0.52%	0.77%
Primary/ Junior	11.65%		10.89%	10.99%	9.08%	9.08%	6.39%	0.57%	7.20%
Secondary	7.61%		7.77%	7.88%	5.76%	5.76%	3.70%	0.37%	4.25%
Post-Secondary	3.80%		5.32%	5.39%	4.10%	4.10%	0.96%	0.18%	0.91%
Khalwa	3.45%		4.36%	4.32%	5.09%	5.09%	1.34%	0.41%	0.64%
Not stated	73.48%		71.66%	71.42%	75.97%	75.97%	36.41%	8.76%	27.71%
All Sudan									
Total	100.00%	100.00%	43.68%	84.07%	15.93%	100%	48.80%	10.28%	40.70%
Male	50.07%	50.07%	28.99%	57.23%	9.14%	57.33%	17.28%	5.57%	22.44%
Female	49.93%	49.93%	14.69%	26.84%	6.80%	42.67%	31.52%	4.71%	18.26%
Urban	31.49%	31.49%	11.83%	23.74%	3.33%	20.93%	16.72%	2.18%	17.69%
Rural	61.48%	61.48%	28.47%	53.78%	11.40%	71.57%	29.21%	7.24%	22.16%
Nomad	7.03%	7.03%	3.38%	6.54%	1.20%	7.51%	2.87%	0.86%	0.85%
North									
Total	80.58%	80.58%	30.10%	57.32%	11.59%	72.73%	43.16%	6.91%	37.07%
Male	40.41%	40.41%	22.14%	43.60%	7.08%	44.41%	14.64%	3.69%	20.20%
Female	40.17%	40.17%	7.96%	13.71%	4.51%	28.31%	28.52%	3.22%	16.86%
Urban	28.02%	28.02%	9.71%	19.54%	2.68%	16.83%	15.48%	1.58%	16.56%
Rural	45.53%	45.53%	17.01%	31.23%	7.71%	48.40%	24.81%	4.46%	19.66%
Nomad	7.03%	7.03%	3.38%	6.54%	1.20%	7.51%	2.87%	0.86%	0.85%

Source: Own calculation based on Sudan Central Bureau of Statistics Population Census Data (2010); The Fifth Sudan Population and Housing Census (2008).

²¹ In this paper the terms Ministry of Labor, Ministry of Labor and Public Service, Ministry of Labor and Administrative Reform

The fourth stylized fact on the incidence on unemployment in Sudan is that the persistence of unemployment (especially among youth) is not only high but also shows a tendency to increase over time in Sudan which is most probably related to the big mismatch between educational qualifications –supply- and labour market requirements- demand which is perceived from the observed structural change in the demand or changing trends in the share of employment over the period 1988/1989 and 2008. In particular, on average demand or priority in employment was concentrated among high secondary schools graduates over the period 1988/1989- 1996, but the trend changes, and on average priorities in employment was turned to be concentrated in applied science colleges followed by social science and art colleges and finally higher institute diploma over the period 2001-2008. This can be attributed to changing trends and priorities from hiring high secondary school graduates to hiring university graduates, especially applied science college graduates, due to changes in higher educational policies, in particular, the higher education revolution lead to expansion in higher educational institutions and increase in student enrolment and graduation during and after 1990s. This can be interpreted as structural change in the demand for youth labour in favour of university graduates due to structural change in higher educational policies. We observe the changing trend and priorities in reducing employment for higher secondary school graduates to increasing employment for university graduates. However, the structural change in the demand for youth labour in favour of increasing employment for university graduates should not hide the fact that unemployment among university graduates is surprisingly high and continue to increase. Somewhat surprisingly unemployment crisis was persistent especially among all youth graduates women and men in different field of specializations, even among graduates of applied science colleges. The majority of employment was for graduates in applied science colleges, followed by graduates in social science and art colleges and finally the minority for graduates of higher institute diploma. In general, men were likely to be more employed than women and women were likely to be more unemployed than men.

This fourth stylized fact implies the big mismatch between educational qualifications – supply- and labour market requirement- demand. An important endogenous cause of youth unemployment is the mismatch between educational (qualifications-output) and labour market requirements. Deficiency in educational policies and labour market policies and inadequate planning, assessments and monitoring of policies to create consistency between attained and required education lead to serious mismatch between educational attainment and labour market requirements. To elaborate the mismatch and unemployment amongst university graduates we utilize the figures on registration and employment obtained from the federal public service recruitment board and we use the figures on registration to refer to supply of university graduates labour and use the figures on employment to refer to demand for university graduates labour, we

are used interchangeably to refer to Ministry of Labor, because the ministry of labour is named differently in different regimes.

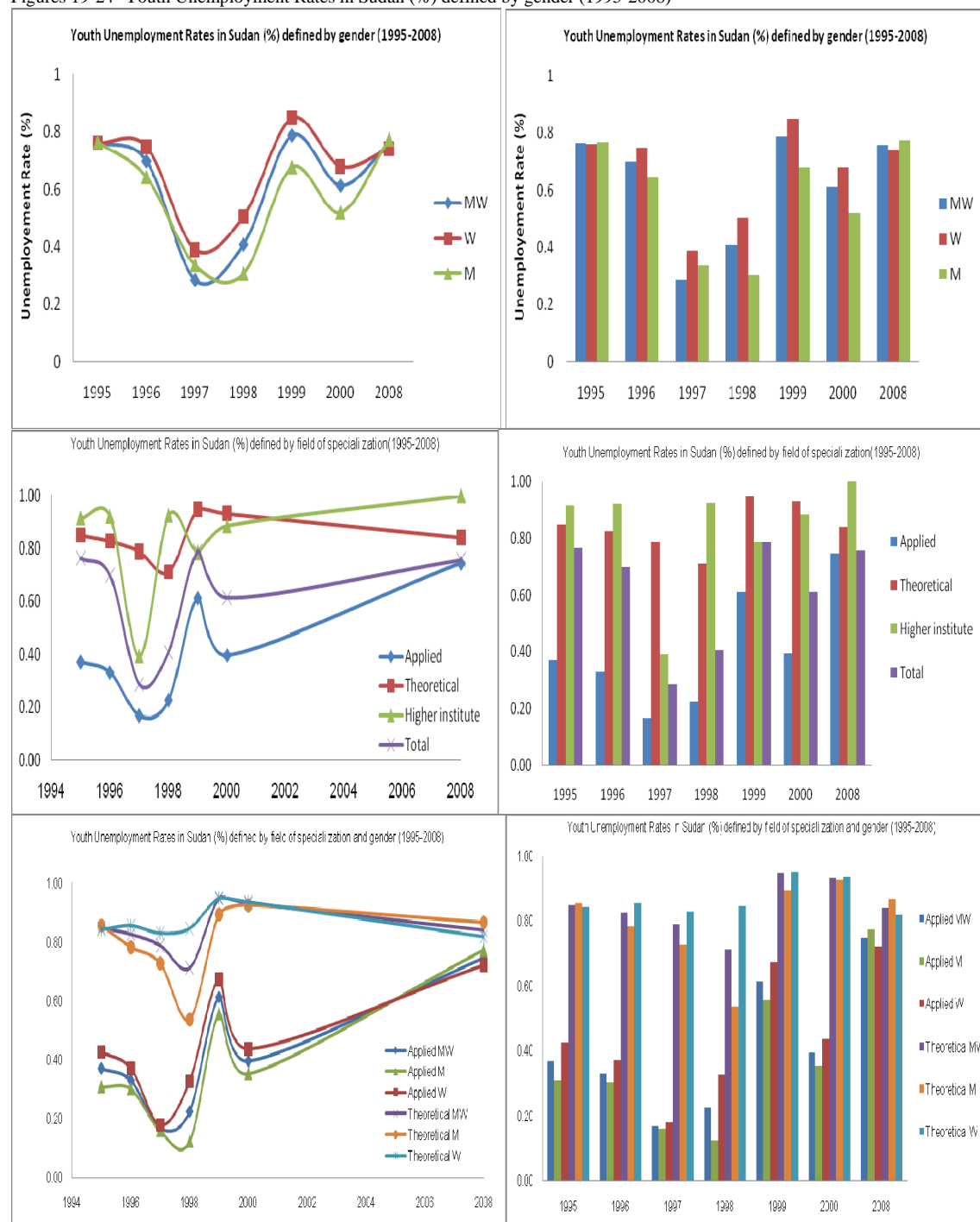
calculate the differences between registration and employment to refer to the differences between supply of and demand for university graduates and to define unemployment, then we divide the figures on unemployment by the figures on registration to calculate the unemployment rates for university graduates.²² We find that unemployment amongst university graduates in all subjects or fields of specializations is persistent and high for more than two decades over the period 1984/85 and 2008. In particular, persistent and high unemployment rates were mostly amongst theoretical, social science and art colleges graduates and technical education high institute (diploma) graduates. Majority of employed graduates were within applied science colleges graduates, but this should not hide the fact that unemployment among this category is surprisingly also very high. This implies mismatch between attained education (educational policies) and required education in labour market (labour market policies) - see Figures 19-24 below. We find that the high unemployment is persistent amongst the university graduates with different fields of specializations over the period 1984/85-2008, for example, on average the rates of unemployment for all fields of specialization was estimated at 73%, 82%, 78%, 81%, 76%, 69%, 28%, 41%, 78%, 61% and 76% in 1984/85, 1985/1986, 1986/87, 1987/88, 1995, 1996, 1997, 1998, 1999, 2000 and 2008 respectively. In particular, for applied science colleges unemployment estimated at 64%, 85%, 75%, 48%, 40%, 75% in 1984/85, 1985/1986, 1986/87, 1987/88, 2000 and 2008 respectively. As for social science and art colleges, unemployment estimated at 88%, 66%, 76%, 90%, 82%, 93% and 84% in 1984/85, 1985/1986, 1986/87, 1987/88, 1990/91, 2000 and 2008 respectively. As for higher institute diploma, unemployment estimated at 74%, 93%, 84%, 75%, 49% and 88% in 1984/85, 1985/1986, 1986/87, 1987/88, 1990/91 and 2000 respectively.

Over the period (2000-2008) total unemployment for graduates of all fields of specialization increased from about (61.2%, 68.1%, 51.9%) in 2000 to about (75.7%, 74.2%, 77.5%) in 2008; unemployment for graduates of applied science colleges and fields of specializations increased from about (39.6%, 43.7%, 35.3%) in 2000 to about (74.6%, 72.1%, 77.4%) in 2008; unemployment for graduates of art and social sciences colleges and fields of specializations decreased from about (93.1%, 93.6%, 92.4%) in 2000 to about (84%, 81.7%, 86.6%) in 2008 and unemployment for graduates of high institutes (diploma) increased from about (88.4%, 93%, 82%) in 2000 to about (100%, 100%, 100%) in 2008 for total, women and men respectively. Over the period (1995-2000) the distribution of unemployment by gender implies that for all fields of specializations, applied science colleges and social sciences colleges and fields of specializations women are likely to be more unemployed than men. Whereas somewhat surprisingly, the opposite is true in 2008 as the distribution of unemployment by gender implies

²² One limitation is that the use of figures on registration and employment to refer to supply of and demand for university graduates labor respectively may be somewhat inaccurate and underestimate the actual figures on supply of and demand for university graduates, because not all university graduates looking for jobs are registered for the federal public service recruitment board and also because figures on employment may include university graduates unregistered for the federal public service recruitment board.

that for all fields of specializations, applied science colleges and social sciences colleges and fields of specializations men are likely to be more unemployed than women- see Figures 19-24 below. Therefore, these findings provide further evidences on the serious and increasing trend of youth unemployment, notably unemployment of university, college and higher institute diploma in Sudan over the period (2000-2008). This implies the urgent need for implementation of sound policies to address the unemployment problem and increase employment opportunities in Sudan.²³

Figures 19-24- Youth Unemployment Rates in Sudan (%) defined by gender (1995-2008)



Source: Own calculations based on data from the federal public service recruitment board- Statistics and Research Administration

²³ See Sudan Federal Public Service Recruitment Board- Statistics and Research Administration.

4. Conclusions

This paper explains the general political context, socioeconomic characteristics of Sudan, and strategic problems for development in Sudan and discusses the strategic problems facing the labour market in Sudan and highlights the need for skill upgrading and development.

We begin by explaining the general socio-economic characteristics of Sudan's economy, We explain several stylized facts on the labour market, First we explain the relation between the structure of labour market and the demographic structure, participation rates and economic activities, second we show the relation between the structure of labour market and the low skill level and brain drain problems and finally we examine the relation between the structure of labour market and the unemployment and youth unemployment problem in Sudan. We show that the differences in the structure and distribution of the total population defined by age, gender, and mode of living have several important implications in the structure of labour market, notably; we find that the labour force, participation rates, economic activities, skill level, employment rates and unemployment rates for men are higher than women, for rural are higher than urban areas in Sudan.

Different from the several studies in Sudanese literature we examine in detailed four stylized facts on the unemployment problem in Sudan including the presence of several types of unemployment; the interpretation of unemployment crisis in Sudan from two different endogenous and exogenous perspectives due to endogenous and exogenous causes; the high incidence of unemployment among youth population and the big mismatch between educational qualifications – supply- and labour market requirement- demand. Moreover, one advantage of our analysis is that we explain these stylized facts using a new data on population, employment and unemployment based on Sudan central bureau of statistic (2010) the Fifth Sudan Population and Housing Census (2008).

The major policy implication from our findings indicate that since the unemployment crisis is related or linked to the endogenous and exogenous causes explained above, therefore, reducing unemployment and enhancement of employment creation are most probably related or linked to several important factors and so policies intervention should deal with these endogenous and exogenous reasons or causes. The concerned parties in the solution of unemployment problem in Sudan not only include the role of government and public sector, but also essential roles for the private sector and non-governmental organization as well as the civil society. This implies that one possible policies intervention for reducing unemployment and enhancement of employment creation are related or linked to increase employment and job opportunities in the public and government sector and increase employment and job opportunities in the private sector and improve of work conditions and employment policies and improve the roles and functions of the committee or board of recruitment. In addition to improvement of the quality of educational policies and improve the consistency (match) between educational qualifications (output) and

labour market requirements. One major policy implication from our result implies that an increase in unemployment rates is positively and significantly correlated to an increase in inflation rates over the period (2000-2008), and so macroeconomic policies aimed at or targeting reducing inflation rates would also contribute to reduce unemployment rates. Therefore, macroeconomic policies should be used to reduce inflation in order to reduce unemployment in Sudan. Other policies include reducing the use of foreign workers and the influx of foreign refugees. Reduce the internal migration by avoiding civil war and conflict and solving of political problems and achieving political stabilization, ensure equity and fairness in the labour market. Attract foreign capital for the creation of new employment opportunities for domestic and local workers and upgrading skill levels. Create more job opportunities for poor by enhancing small and medium scale enterprises and provide unemployment insurance for poor. Enhance small and family projects. Implement balanced development strategies and improve of work conditions and availability of infrastructure and offer incentives to encourage work in the far states and finally, the use of oil revenues to create more and new employment opportunities for domestic workers in Sudan. It is important to realize that the unemployment crisis cannot be managed in a sustainable way through increased employment in an already inflated public sector and productive employment must be generated mostly in the private sector. Dealing with unemployment crisis and meeting the poverty alleviation challenge requires actions in wide-ranging areas of structural reforms to improve the business environment, encourage private sector investment, stimulate productivity growth, and enhance efficiency. Implementation of plans simultaneously targeting reducing unemployment and poverty, for instance, provision of more employment opportunities and poverty alleviation are related to improving infrastructures and facilities of value to the whole society, using labour-intensive methods or schemes to generate employment for large numbers of poor people as well as mobilizing small, informal enterprises where many of the poorest workers are concentrated. These strategies expected to also lead to sustainable job creation and therefore poverty alleviation.

References

- Corden, W.M. (1984) "Booming Sector and Dutch Disease Economics: Survey and Consolidation," Oxford Economic Papers 36 (November 1984): 360–62.
- Palma, G. (2003) "Four Sources of de-industrialisation and a new concept of the Dutch Disease," Unpublished paper presented at *UNU- INTECH Research Seminar Series 2004-2*, 19 May 2004: p. 21
- Shaban, R. A., Assaad, R. and Al-Qudsi, S. S. (1995) "The Challenge of Unemployment in the Arab Region;" International Labour Review, Vol. 134, 1995, at www.questia.com/PM.qst?a=o&se=gglsc&d=5000320794 accessed in November 20, 2007.
- Sudan Central Bureau of Statistics– Department of Internal Commerce and Pricing.
- Sudan Central Bureau of Statistics Population Census Data (2010): The Fifth Sudan Population and Housing Census (2008)
- Sudan Central Bureau of Statistics (2008) "Sudan statistical year book: Sudan statistics 2008," Sudan Central Bureau of Statistics, Sudan Ministry of the Cabinet..
- Sudan Central Bureau of Statistics (2008) "Sudan statistical year book: Sudan statistics 1990- 2008," Sudan Central Bureau of Statistics, Sudan Ministry of the Cabinet: pp. 3, 39-43.
- Sudan Central Bureau of Statistics Statistical Year Book (2008), "Sudan Economy in Figures: General Information" pp. XI-XII.

- Sudan Central Bureau of Statistics (2007) "Sudan statistical year book: Sudan statistics 2007," Sudan Central Bureau of Statistics, Sudan Ministry of the Cabinet.
- Sudan Central Bureau of Statistics: Volume 2, Economic and Social Characteristics.
- Sudan Health and Household Survey 2006
- Sudan Ministry of Finance and National Economy- Annual Economic Survey Report (Various Issues: 1997-2007)
- Sudan Ministry of Finance and National Economy (2008) Unpublished Report (2008),
- Sudan Ministry of Finance and National Economy (2006) "The Performance of Sudan Economy 2000-2005" April, 2006, pp: 16-18
- Sudan Ministry of Finance and National Economy (2005) "Sudan Economy in Figure: 2000-2005" (Second edition), Ministry of Finance and National Economy, Macroeconomic Policies and Programme Directorate MEPPD, Khartoum, Sudan, (2005).
- Sudan Ministry of Finance and National Economy (2002) "Sudan Economy in Figure: 1990-2002" (First edition), Ministry of Finance and National Economy, Macroeconomic Policies and Programme Directorate MEPPD, Khartoum, Sudan, (2002), p 27.
- Sudan Ministry of Finance and National Economy- Annual Economic Survey 2000, Table 7-2, p. 10.
- Sudan Ministry of Industry (2005) "The Comprehensive Industrial Survey (2005)", Khartoum, Sudan, July, 2005: The executive summary of the comprehensive industrial survey, (2005), p. 29.
- Sudan Ministry of International Cooperation.
- Sudan Ministry of Investment unpublished statistics and data from the feasibility studies (2009)
- Sudan Ministry of Labour and public service Annual Economic Reports (various issues)
- Sudan Ministry of Labour and public service, Central Bureau of Statistics- Migration and Labour Force Survey 1996.
- Sudan Ministry of Labour Report 2004-2005 "Labour Market and Unemployment in Sudan".
- Sudan Ministry of Labour and public service Migration and Labour Force Surveys 1990
- Sudan Ministry of Labour and Administration Reform- Department of Planning and Monitoring and Follow-up
- Sudan Ministry of Labour and Public Service - Official estimates- Annual Reports
- The Arab Labour Organization (2007) for data for 2004
- The United Nations Development Programme UNDP- The Arab Human Development Report (2003): *Arab human development report 2003: Building a knowledge society*. Amman, Jordan: UNDP-RBAS; New York, NY: National Press. Table 5.1 p.102.
- The Central Bank of Sudan Annual Report (Various Issues: 1999-2009)
- The Central Bank of Sudan Annual Report (2009), p. 84.
- The Central Bank of Sudan Annual Report (2004), p. 36.
- The Central Bank of Sudan (2004) "The impacts of technologies on the banking sector in Sudan during the period 1999-2003" Report of the Central Bank of Sudan, Statistical and Research Department Series, Issue No. 6- pp. 13, 36.
- The Federal Public Service Recruitment Board- Statistics and Research Administration
- The United Nations Development Programme UNDP (2010) UNDP Sudan Country profile of Human Development Indicators (2010): <http://hdrstats.undp.org/en/countries/profiles/SDN.html>, accessed on December 22, 2010.
- The United Nations Development Programme UNDP (2010) "Human Development Report 2010: The Real Wealth of Nations: Pathways to Human Development," Human Development Report 2010—20th Anniversary Edition New York, NY: UNDP, Palgrave Macmillan, Statistical Tables, Statistical Annex, Table 12: Decent Work, p.191.
- The United Nations Development Programme UNDP (2009) "Human development report 2009: Overcoming barriers: Human mobility and development. New York, NY: UNDP."
- The United Nations Development Programme UNDP- HDR (2007/2008) "Human development report 2007/2008: Fighting climate change: Human solidarity in a divided world". New York, NY: UNDP pp. 231-232, 392-293.
- The United Nations Millennium Development Goals in Sudan "Sudan Millennium Development Goals Interim Unified Report, 2004": http://www.sd.undp.org/mdg_sudan.htm, accessed on June 01
- The United Nations Development Programme UNDP in Sudan (2006) "Macroeconomic Policies for Poverty Poverty Reduction: The Case of Sudan," Khartoum, Sudan, 2006.
- The United Nations Development Programme UNDP (2006): "employment generation and poverty reduction," Chapter Nine in the 2006 UNDP report on "Macroeconomic Policies for Poverty Reduction: the case of Sudan" published for the UNDP in Sudan, Khartoum, Sudan, June 1006 pp. 92-94.
- The UN Resident Coordinator's Support Office, Khartoum, Sudan: http://www.sd.undp.org/mdg_fact.htm, accessed in June 01, 2010.
- The World Bank (WB-DTS) (2008) "Revitalizing Sudan's Non-Oil Exports: A Diagnostic Trade Integration Study (DTIS) Prepared for the Integrated Framework Programme (December 2008)" A Revised version of "Sudan Diagnostic Trade Integration Study (DTS), Poverty Reduction and Economic Management 2- Africa region,, Draft: may 2, 2008, Decision Meeting: May 13, 2008": pp. viii-ix; 1-7: <http://www.integratedframework.org/files/english/Sudan%20DTIS%20final.pdf>
- Wikipedia: http://en.wikipedia.org/wiki/Brain_drain, accessed November 14, 2010.

The UNU-MERIT WORKING Paper Series

- 2014-01 *The medium-term effect of R&D on firm growth* by Marco Capasso, Tania Treibich and Bart Verspagen
- 2014-02 *Diverse and uneven pathways towards transition to low carbon development: The case of diffusion of solar PV technology in China* Michiko Iizuka
- 2014-03 *User innovators and their influence on innovation activities of firms in Finland* by Jari Kuusisto, Mervi Niemi and Fred Gault
- 2014-04 *Migration, remittances and household welfare in Ethiopia* by Lisa Andersson
- 2014-05 *Path-breaking directions of nanotechnology-based chemotherapy and molecular cancer therapy* by Mario Coccia and Lili Wang
- 2014-06 *Poor trends - The pace of poverty reduction after the Millennium Development Agenda* Richard Bluhm, Denis de Crombrughe, Adam Szirmai
- 2014-07 *Firms' adoption of international standards: Evidence from the Ethiopian floriculture sector* by Mulu Gebreeyesu
- 2014-08 *School choice, segregation, and forced school closure* by Cheng Boon Ong and Kristof De Witte
- 2014-09 *Gender difference in support for democracy in Sub-Saharan Africa: Do social institutions matter?* by Maty Konte
- 2014-10 *Why are women less democratic than men? Evidence from Sub-Saharan African countries* by Cecilia García-Peñalosa and Maty Konte
- 2014-11 *Tipping points? Ethnic composition change in Dutch big city neighbourhoods* by Cheng Boon Ong
- 2014-12 *Technology life cycle and specialization patterns of latecomer countries. The case of the semiconductor industry* by Giorgio Triulzi
- 2014-13 *Patents as quality signals? The implications for financing constraints on R&D* by Dirk Czarnitzki, Bronwyn H. Hall and Hanna Hottenrott
- 2014-14 *Assessment of effectiveness of Chinese aid in competence building and financing development in Sudan* by Samia Satti Osman Mohamed Nour
- 2014-15 *Education, training and skill development policies in Arab Gulf countries: Macro-micro overview* by Samia Satti Osman Mohamed Nour
- 2014-16 *Structure of labour market and unemployment in Sudan* by Samia Satti Osman Mohamed Nour